

## DE-RP30-09CC40020, Site Visit

February 13, 2009

### Paducah Site

Please remember that no questions will be taken during the tour. Please submit all questions in writing as explained during the morning session. As we drive to the site, a video describing the C-340 Complex video will play. A link to this video is also available on the Paducah Gaseous Diffusion Plant Environmental Remediation Project website.

The U.S. Department of Energy, or DOE, is responsible for cleanup and legacy waste management activities at the Paducah Site. The overall cleanup is organized into 3 areas; 1) environmental remediation of the site and the decontamination and decommissioning, or D&D, of inactive facilities, 2) conversion of the depleted uranium hexafluoride inventory, or DUF<sub>6</sub>, to a more stable form, and 3) the eventual D&D of the Paducah Gaseous Diffusion Plant, or PGDP. Currently, the gaseous diffusion plant is operated by the United States Enrichment Corporation, or USEC.

To your right is the DUF<sub>6</sub> Conversion Facility. Uranium Disposition Services, LLC, or UDS, is under contract to DOE to disposition DUF<sub>6</sub> that is stored in cylinders in Paducah, Kentucky and Portsmouth, Ohio. DUF<sub>6</sub> is a product of the uranium enrichment process. UDS was tasked with designing and constructing conversion facilities on DOE property at Paducah and Portsmouth that will convert DUF<sub>6</sub> to a stable chemical form acceptable for beneficial use, reuse, or disposal. In addition, UDS provides surveillance and maintenance of the DOE inventory of DUF<sub>6</sub> cylinders.

Before we enter into the industrialized area of the Paducah Site, it's important to note that all remediation activities must be coordinated with other site contractors and USEC.

In order to efficiently and safely coordinate activities among DOE, DOE contractors, and USEC, a Shared Site Agreement was put into place in 1993. The Shared Site Committee is chaired by USEC and includes representatives from DOE, the Paducah Site remediation contractor, the DUF<sub>6</sub> contractor and the Paducah Site infrastructure contractor. Working within the bounds of the DOE and USEC Lease Agreement and the Shared Site Charter, this committee operates in accordance with established Shared Site procedures. Bi-weekly meetings serve as a forum for open discussion and resolution of potential issues or activities that may impact the parties. As personnel from the site's contractors and USEC frequently enter into the other's areas, there must be consistency in General Employee Training and radiological programs. Differences between contractor and USEC programs must be well communicated to the selected remediation contractor's employees. Additionally, coordination for the shared use of site infrastructure such as railroads and utilities is needed as well as ensuring that contractor and USEC operations don't impact the other site occupants' authorization basis documents. Issues that cannot be resolved by the Shared Site Committee are elevated to the Site Council, which consists of the management leads for DOE, DOE prime contractors and USEC.

Before we leave this stop, please note the gray bridge structure to the left of the bus. This is the point of compliance for the Kentucky Pollutant Discharge Elimination System (or KPDES)

permitted Outfall 17. Discharges through this outfall drain to Bayou Creek, which borders the plant to the west and discharges to the Ohio River to the north. UDS is a co-permittee for Outfall 017 and is responsible for effluent at this outfall, however the required sampling and monthly reporting is the responsibility of the remediation contractor.

The C-100 Administration Building, located in front of us and to your right, includes the offices for the USEC General Manager, the USEC Plant Manager, and the Nuclear Regulatory Commission representative. The building also houses other administrative and technical support organizations for USEC. Additionally, it houses a credit union and a medical facility. Emergency medical support is a government-furnished service and item, or GFSI, to the remediation contractor. However, contractors must provide for their own non-emergency medical incidents.

Adjacent to C-100 is the C-101 Cafeteria. It is a full food service facility operated by USEC that provides breakfast and lunch for on-site personnel with seating capacity for approximately 250 people. The Cafeteria is available to contractors as a convenience through USEC and is not required by DOE.

The building to your left is C-200. The plant's fire and security forces are USEC personnel, and are housed in this facility. PGDP maintains a group of trained security and fire personnel to respond to plant emergencies. These are government furnished services to the remediation contractor. The infrastructure contractor is the primary contact with USEC regarding GFSI security services.

Security operations are comprised of Protective Force members and security staff professionals. The Protective Force operates 7 days per week, 24 hours per day, and is responsible for the implementation of the plant's physical security plans and policies. DOE's infrastructure contractor is responsible for maintaining the Site Security Plan for all DOE operations at the Paducah site and for preparing physical security plans and vulnerability assessments in support of all DOE programs (e.g., physical security, site visits, etc).

The PGDP fire department maintains equipment comparable to that found in larger cities in Kentucky. Emergency response equipment includes a 100-foot snorkel truck, two ambulances, a HAZMAT emergency truck, and a pump truck with foam-making capability. The plant also has mutual-aid agreements with surrounding community fire services so additional help is available during an emergency, if needed.

To your left is the USEC laboratory, housed in the C-710 Building that provides analytical support for over 90% of the sampling performed by the DOE remediation contractor including environmental media such as water, soil, sediment, and waste. The remediation contractor utilizes USEC lab services through a contract that is negotiated annually between the remediation contractor and USEC. As specified within the remediation contractor's contract with USEC, a statement of work is provided to the USEC laboratory for each unique sampling event, which contains the required analytical methods, parameters, reporting limits, number of samples, turnaround time, and data deliverables. USEC will return the waste to the remediation contractor for disposal if the lab does not have a disposal outlet for the waste. The USEC lab is

also required to pass an annual audit through the DOE Consolidated Audit Program. The remediation contractor also contracts with the USEC Lab for non-destructive assay support, shipping support, and data transfer, which is coordinated through the USEC Laboratory Information Management System.

Storage vaults in the basement of C-710 serve as a repository for legacy/historical documentation stored at the site. As such, the remediation contractor may need to coordinate with USEC to access the site's historical records/drawings.

The domed structure on your left is the C-300 Central Control Facility. From this facility, which is operated and maintained by USEC, critical plant processes, power distribution, utilities, communications, plant alarm systems, and emergency operations are monitored, coordinated, and controlled. The Central Control Facility houses the plant shift superintendent, or PSS, the cascade coordinator, the power supervisor, and the emergency operations center.

The PSS is responsible for overall USEC operations of the plant and acts as incident commander in the event of any plant emergency, including any DOE related emergency. The PSS emergency response is part of the GFSI.

It's important to note that the remediation contractor **is** responsible for supporting the Emergency Operations Center, or EOC, including staffing as necessary, upon its activation and ensuring all Emergency Management Hazard Analyses are maintained and updated. The infrastructure contractor will coordinate DOE contractor EOC interfaces.

C-333, the building to your left, is an active facility leased to USEC. Coordination of remediation contractor activities will be required at this facility through shared site initiatives.

When PGDP was constructed in the 1950s the ventilation duct seams were sealed using polychlorinated biphenyl, or PCB, impregnated gaskets that consist of rubber or felt. The PCB concentration in the gaskets exceeded 500 ppm. Leaks from the building's lubrication oil system drain into the ventilation system ducts and saturate the gasket material, leaching out some of the PCBs. PCB contaminated oil occasionally leaks from the ductwork onto the floor.

In 1992, DOE and the U.S Environmental Protection Agency, or EPA, entered into a Toxic Substances Control Act, or TSCA, Uranium Enrichment Federal Facilities Compliance Agreement to address TSCA violations at DOE's uranium enrichment plants in Paducah, Kentucky, Portsmouth, Ohio, and Oak Ridge, Tennessee. This agreement required the Paducah Plant to install collection troughs to capture leaks from motor exhaust gasket flanges by March 30, 1994. Over 16,000 troughs were installed in buildings C-331, C-333, C-335, and C-337 to meet this requirement.

PCB contaminated lube oils are continuously collected via the trough system and are routinely collected and properly disposed. Maintenance of the trough system is ongoing. Some lube oil leaks occasionally spill to the floors and are required to be cleaned. Wastes generated as a result of the cleanups are packaged and disposed as PCB remediation waste. During calendar year 2007, 14 PCB spills were identified and cleaned.

The contractor will be responsible for continuing the maintenance, collection, packaging and disposal of PCB materials resulting from the trough collection system and will be responsible for clean up and disposal of any spills per regulatory guidelines.

We will now enter the C-333 Building to view the trough system and drip legs. Ear plugs and safety glasses are required. Please exit the bus and stay within the boundaries indicated by the escorts. Also please remember that no questions will be taken during the tour.

To the right of the bus is the cylinder yard maintained by UDS.

To your right is a split waste storage facility that is shared by DOE and USEC. The C-746-Q Hazardous and Low-Level Waste Storage Facility, which is operated by DOE's remediation contractor, and C-746-Q1 High Assay Waste Storage Facility, which is leased by USEC, are housed in a single metal structure constructed as a storage building in 1978. The C-746-Q area is on the west side of the building. The total building area is approximately 49,520 ft<sup>2</sup>. The C-746-Q area is a single open area of approximately 33,165 ft<sup>2</sup> and is separated from the Q1 area by a concrete block, fire-resistant, gypsum board wall.

Currently, C-746-Q is used to safely package, store, ship, or receive legacy and remediation related waste. Containerized waste types stored here include Resource Conservation and Recovery Act (RCRA), fissile, transuranic, TSCA, non-regulated, and low-level radioactive wastes, or LLW. Containerized classified material is also stored in this building and is scheduled to be dispositioned during fiscal year 09.

A single criticality accident alarm system provides coverage for both the C-746-Q and C-746-Q1 activities. The maintenance and testing of the CAAS is provided by USEC under a work authorization with DOE and is provided to the remediation contractor as government furnished service.

The C-340 Complex is the group of buildings to your left that includes the enclosed conveyor system. The complex was previously used to convert DUF<sub>6</sub>, to UF<sub>4</sub>, uranium oxides, and uranium metal. The complex is classified as a radiological facility. Operations have ceased and the complex has been placed in the DOE D&D program. Routine surveillance & maintenance activities are ongoing until D&D begins. The estimated amount of loose material at the C-340 Complex is approximately 22,000 cubic feet.

The C-340 Complex was used to convert uranium in the form of UF<sub>6</sub> to uranium metal. The uranium metal was formed into derbies that were shipped to various customers. Additionally the complex contained a re-melt area where uranium metal was re-melted and formed into various shapes as requested by customers. It was also used as a valve testing facility for the Gas Centrifuge Enrichment Program. Training department offices were also located in this complex at one time. It was also used for a mechanical maintenance shop after the process was closed down. There are no known visible classification concerns with this complex.

The C-340-A, B and C buildings are all physically connected. The facilities are metal frame structures, with transite exterior walls and built-up roofs. The C-340-A and B facilities are single level or single level with operating platforms. The C-340-C building has four floors. The C-340-D is a prefabricated metal building that was used for the receipt and storage of drums of magnesium for use in the complex. The C-340-D building is connected to the C-340-A, B, and C facilities by a sloped conveyer system that was used to transport magnesium from the ground floor warehouse to the third floor of C-340. The conveyer is enclosed in a protective housing. The C-340-E Emergency Power Building is a prefabricated metal building. This facility houses the emergency propane generator that provided backup electrical power for the criticality accident alarm system when the C-340 complex was in operation.

This work includes the deactivation, decontamination, demolition and disposition of all material associated with the D&D of the C-340 Complex, all site restoration, demobilization activities, and submittal of a final Removal Action Completion Report.

The C-637-2A and 2B Cooling Towers on your right serve two purposes. Their primary function is to remove heat from water that is used to cool gaseous diffusion process equipment in the C-337 building.

The secondary purpose is to serve as a passive air stripper for trichloroethene, or TCE contaminated groundwater from the Northeast Plume Pump and Treat Operation. Groundwater is pumped from an equalization tank at the northeast plume to the south C-637-2A cooling tower and is cycled through with the process water. Volumetrically low quantities of TCE are stripped from the groundwater in the cooling process.

Northeast plume groundwater is piped to the north C-637-2B cooling tower when the south tower is undergoing maintenance. Process water from the active stripper tower is sampled monthly for TCE content.

To your left is the C-410-B Hydrogen Fluoride, or HF, Neutralization Lagoon. It is a rectangular surface impoundment, approximately 38 feet by 51 feet, and about 7 feet deep. It has an earthen clay bottom and sloped sides. The sides are built of cement grout reinforced with wire. The lagoon received discharges from the C-410-C Neutralization Building where lime was used for the neutralization of HF cell electrolyte from lead acid batteries. In addition, trucks transporting fly ash to the C-746-T Inert Landfill were rinsed in this impoundment. Use of the lagoon ceased in the 1970s. The C-410-B HF Neutralization Lagoon is one of three soils inactive facilities currently scheduled for removal during calendar year 2009.

The selected remediation contractor will prepare, complete, and submit remaining documentation, including submittal of the final Removal Action Completion Report; support DOE in obtaining regulatory approval of those documents; and complete any outstanding field activities.

The whitish buildings to your left are part of the C-410/420 Complex. The complex was constructed in the 1950s and consists of a grouping of single-story and multi-storied steel and transite facilities with approximately 194,000 ft<sup>2</sup> of floor space. The complex houses process

equipment and various support systems. It was used for the conversion of uranium oxide to uranium hexafluoride through a series of reactions involving gaseous hydrogen, or H<sub>2</sub>, hydrogen fluoride, and fluorine gas, along with the production of fluorine to support the gaseous diffusion of uranium-235. Operations ceased in 1977 and the complex was utilized for storage for a period of time. The buildings are contaminated with uranium oxides, uranium hexafluoride, uranium-235, greater than 1% weight, beryllium, heavy metals, asbestos, PCBs, refrigerants, hydrogen fluoride, transuranics, and other contaminants.

The C-410/420 Complex is currently classified as a Hazard Category 2 Nuclear Facility in accordance with 10 CFR 830 for internal inventory. It contains classified equipment which is expected to be removed prior to the selected remediation contractor executing the new contract.

There are no known nuclear criticality safety, or NCS, items within the C-410/420 Complex; however, NCS concerns could emerge as D&D progresses. Full personal protective equipment, including respirators is currently required for entry into the facility. A portion of the complex requires criticality accident alarm system, or CAAS, coverage as a result of a nearby USEC fissile material operation. CAAS coverage is provided by a portable system CAAS.

D&D of the facility is underway. All accessible asbestos is expected to be abated within all facility sectors by September 30, 2009. The on-going removal action is being conducted under the Paducah Federal Facility Agreement, per the *Action Memorandum for C-410 Infrastructure Removal*. Remaining non-accessible asbestos includes approximately 485 linear feet and 4,820 square feet of asbestos within Sector II, approximately 1,385 linear feet and an additional 500 square feet of asbestos within Sector III, and approximately 427 linear feet within Sector IV.

The following system components are expected to still require removal at the end of FY09:

- UF<sub>6</sub> within Sectors V and VI
- HF system within Sector VIII
- H<sub>2</sub> system within Sector VIII
- Ammonia system within Sector II
- Glycol system within Sectors V and VI
- Vacuum system within Sectors II through VIII
- Freon system within Sector II
- Electrolyte system within Sectors II and III
- Alcohol system within Sectors II and III
- Uranium Powder within Sectors V through VIII
- H-VAC system within Sectors II through VIII

This work scope includes the deactivation, decontamination, demolition and disposition of all material associated with the D&D of the C-410/420 Complex; site restoration; and submittal of a final Removal Action Completion Report.

We will now exit the bus to view the HF Neutralization Lagoon and then walk a short distance to the opened roll-up door at C-420 to view the building interior. Safety glasses are required, hearing protection is not required. Please note that you will not be allowed to enter the building. Please exit the bus and stay within the boundaries indicated by the escorts.

To your left is the C-403 Neutralization Tank. Currently under cover, the tank is a 30 feet by 30 feet subsurface impoundment approximately 26 feet deep. The sump is constructed of reinforced concrete and lined with two layers of acid resistant brick. The facility, constructed in 1952, was utilized for the storage and treatment of acidic, uranium-bearing waste solutions generated during cleaning operations in the C-400 Building until 1957. After 1957, contaminated wastewater such as low level and uranium-bearing wastewater continued to be discharged to the tank until 1990. The C-403 Neutralization Tank is one of three inactive facilities in the Soils Operable Unit currently scheduled for removal during calendar year 2009. Because of its proximity to C-400, which is currently leased by USEC, the current remediation contractor will make the appropriate notifications to USEC through the shared site initiative prior to initiating field activities.

The selected remediation contractor will prepare, complete, and submit remaining documentation, including submittal of the final Removal Action Completion Report; support DOE in obtaining regulatory approval of those documents; and complete any outstanding field activities.

Please note the small mounded gravel area to your left. This area serves as a railcar loading point. From 2005 to 2006, scrap metal from the site's scrap metal yards were loaded onto high-sided gondolas from this point.

To the left of the bus are C-746-A and C-746-B warehouses. C-746-B is the south facility and C-746-A is adjacent to it to the north.

The C-746-B warehouse was constructed in the 1950s for plant storage and maintenance and has approximately 71,000 square foot of floor space. More recently it has been used as a waste storage and processing facility. The building currently stores low-level and TSCA wastes and is a radiological facility based on the quantity of radioactive material contained in the waste inventory. The current contractor will disposition all characterized waste currently stored in C-746-B prior to the award of the new contract. A portion of the east section of the building, separated by an internal concrete block wall, contains a miscellaneous equipment storage area. This area, known as the "doors 1 & 2 area", contains radiological contaminated excess equipment. This material is estimated to be 54,000 cubic feet and mainly consists of radiologically-contaminated scrap materials and discarded equipment such as fork trucks, floor sweepers, milling machines, welders, pump parts, etcetera. The discarded equipment may contain fluids and items that will require removal and disposal as RCRA or TSCA waste. Once fully characterized, this material will be placed on the excess property list and/or may be declared waste and properly dispositioned. A portion of this area has been designated an airborne radiological hazard. The remediation RFP currently calls for D&D of C-746-B as an inactive facility with DOE approval. This was done to allow flexibility if the facility is needed by the new contractor to support the cleanup mission.

C-746-A is approved for repackaging RCRA and TSCA waste, compacting waste and empty drums, and crushing fluorescent bulbs. This building was constructed in the 1950s for plant storage and maintenance, has a total area of 72,000 square feet, and is divided into 3 sections: the

east end smelter area; the west end pad area (formerly the west end smelter); and the central waste storage and treatment area, which is also called the center section. The center section also includes an employee break area. The building currently stores low-level, mixed low-level, and TSCA wastes and is a radiological facility based on the amount of radioactive materials contained in the waste inventory. The building housed the east-end and west-end smelters that produced the nickel ingots and other smelted metal ingots.

The east end of C-746-A is approximately 19,200 square feet and was used to smelt primarily nickel and is separated from the central waste area by a concrete block wall. The east end smelter has one coreless electrical induction furnace and a gas-fired calciner that were taken out of service in 1985. The gas supply line has been blanked off and the electrical power supply has been de-energized. The area surrounding the smelter is a radiological contamination area and is locked except when access is needed. The east end smelter area has significant security classification concerns which will need to be addressed during D&D of the facility. The selected remediation contractor will need to coordinate the nature, extent, and handling of these concerns with the infrastructure contractor's security organization.

The former west end smelter area is approximately 7,200 square feet and has undergone D&D, leaving the concrete pad, two fire sprinkler valve vaults and associated piping and wiring. These systems are active and continue to provide fire protection coverage for a portion of the center section.

The center section occupies the balance of C-746-A, including the worker break area and is approximately 45,600 square feet. This RCRA-permitted area is sub-divided into three areas: waste treatment including sorting and drum crushing; temporary storage of excess equipment and empty waste containers; and the main storage area for hazardous and mixed wastes including RCRA, TSCA, and low-level wastes. The fire system in the east end smelter area and in one-half of the center section has been abandoned in place.

The current remediation contractor is tasked with the disposition of all waste currently stored in C-746-A prior to the award of the new contract. The new contract scope will include D&D of the C-746-A building, including the east-end smelter, as an inactive facility. The remediation RFP currently calls for D&D of C-746-A as an inactive facility with DOE approval. This was done to allow flexibility if the facility is needed by the new contractor to support the cleanup mission.

To your right is the nickel ingot storage area. The classified nickel ingots were generated during the 1970s as a result of equipment upgrade projects at the Paducah, Portsmouth, and Oak Ridge uranium enrichment plants. Nickel components from the three facilities were smelted at the Paducah C-746-A east end smelter and poured into ingot molds. This process resulted in the generation of approximately 9,700 tons of volumetrically contaminated nickel stored at the Paducah Site. The ingots are volumetrically contaminated with technetium-99, or tech-99, and low levels of plutonium-239. Any contamination present on the surface of the ingots as a result of the smelting process is considered fixed contamination. Also, the nickel ingots and storage locations were brought into compliance with National Emission Standard for Hazardous Air Pollutants regulations. Fifty-two ingots are double wrapped in plastic and labeled appropriately.



due to the inability to abate them using industry standards. For each nickel ingot produced a small sample was removed before the metal solidified. These samples, referred to as buttons, are currently stored in the east end smelter.

Due to the market value of the nickel, DOE is evaluating recycling the nickel. Contractor scope will be to support DOE in completing evaluation of disposition options and implementing the selected alternative.

Other metals having value include copper, aluminum, lead and iron. The Portsmouth/Paducah Project Office, or PPPO, also supports the storage, staging, and future recycling of these metals. As such, this philosophy should be considered across all projects.

There are a total of 10 burial grounds to be addressed in the Burial Grounds Operable Unit, or BGOU. To your right, the fenced area is the C-746-F Burial Yard. It is also known as solid waste management unit, or SWMU 5. It is a classified burial yard and encompasses an area of approximately 197,000 square feet. The facility was in operation from 1965 to 1987. Various classified materials were buried here to include weapons parts and gaseous diffusion related items. The selected remediation contractor must coordinate with the infrastructure contractor's security organization for the review and handling of material removed from this burial area. The baseline assumes that SWMU 5 will be capped in place.

To your right, indicated by the "Explosion Hazard" signs, is SWMU 6, the C-747-B Burial Ground. SWMU 6 encompasses an area of approximately 13,500 square feet, which is divided into five different burial areas. SWMU 6 was in operation from 1960 to 1976. Waste streams include contaminated aluminum scrap, magnesium scrap, exhaust fans potentially contaminated with perchloric acid salts, and a Modine trap. The baseline assumes that SWMU 6 will be capped and the waste will remain in place.

From this location 3 burial grounds can be seen. Two of the burial grounds, the S&T landfills, which we will see later in the tour, require no further investigation or action. The remaining 8 were investigated and a remedial investigation report, or RI, is being developed. To our immediate right is SWMU 13, which is the C-746-P and P1 scrap metal yards. The P1 yard is to the west of P yard. Located north of SWMU 13 are SWMUs 7 and 30.

Starting at the far back corner to your right, the C-747-A Burn Area, SWMU 30 encompasses an area of approximately 128,000 square feet. The area consists of a historical burn-and-burial pit and the location of a former incinerator which was in use from 1951 to 1970. Ash and debris were buried beginning in 1962, when use of the on-site incinerator was discontinued. The baseline assumes that SWMU 30 will be capped in place. In-situ soil treatment may be required at SWMU 30 prior to capping.

Adjacent to SWMU 30 is the C-747-A Burial Ground, SWMU 7. It is approximately 240,900 square feet and includes six discrete burial pit areas. The pits were used from 1957 to 1979. Three pits were used for disposal of noncombustible, contaminated and uncontaminated trash, material and equipment. Two other pits contain contaminated concrete pieces of reactor trays removed from C-410 Feed Plant in 1960. The remaining pit was used for disposal of uranium-

contaminated scrap metal and equipment and possibly empty uranium, and/or magnesium powder drums. The baseline assumption is that SWMU 7 will be capped. The baseline also assumes that buried waste at SWMU 7 will require in-situ soil treatment in order to complete remediation of the site. Please note that the draft, or D1, RI report contains the latest details regarding the burial ground investigation. The final, or D2, RI to address regulators' comments is not expected to be completed until mid March 2009.

The C-746-P and P1 clean scrap metal yards, SWMU 13 is not part of the BGOU but three newly discovered potential burial pits are currently being investigated under an RI Work Plan. Because of the potential for buried materials in the yards that may be contributing to groundwater contamination, current plans are to address the burial areas as part of the BGOU; however, the Soils Operable Unit will address the remainder of the SWMU. SWMU 13 occupies an area of approximately 294,000 square feet near the northwest corner of the fenced security area. The total approximate area of the three potential burial pits is 43,500 square feet. Estimated pit areas are 70 feet by 200 feet, 130 feet by 150 feet, and 100 feet by 100 feet. All aboveground metal has been removed from the yards however some debris is embedded within the top few feet of soil.

The BGOU work scope for all of the burial grounds includes the submittal and approval of all regulatory documents, for example Proposed Plan, ROD, Remedial Design Report, Land Use Control Implementation Plan, and Remedial Action Work Plan, for the environmental remediation of the burial grounds, implementation of the remedial action, field mobilization, and completion of at least 15% of the remedial action fieldwork.

There are two active truck scales on the plant site, one located to your right and one located south of the C-400 building. This one is currently certified. The other is not certified and is leased to USEC; however it may be used by the remediation contractor.

There are several internal plant ditches that discharge to permitted outfalls surrounding the plant. The drainage ditch to your left is the principle drainage ditch from the plant to Outfall 001. Outfall 001 is one of the permitted discharge sites for which DOE has responsibility. We will be stopping at the outfall later during the tour.

It should be noted that there are 16 permitted outfalls at the plant. The remediation contractor is a co-permittee for 4 of these outfalls. The remaining 12 are USEC's responsibility.

To your right is the C-752-A Storage Facility and to the east on the same side of the road, is the C-753-A Storage Facility. They are the Paducah Site's newest storage facilities. Contractor scope under the Materials Disposition Project is to operate and maintain the waste storage facilities. C-752-A has 43,600 ft<sup>2</sup> of floor space and is used for the storage of RCRA, TSCA, low-level, and mixed low-level waste. Waste treatment also occurs here including wastewater treatment via an activated carbon system and hazardous and higher radiological waste treatment including neutralization, solidification, and stabilization. C-752-A is insulated and heated.

C-753-A, the building to the east, has 31,600 square feet of floor space and is used to store TSCA and low-level waste. Some sorting and waste packaging also occurs here. C-753-A does not have a heating system.

We will now enter the C-752-A Storage Facility. Safety glasses are required. Please exit the bus and stay within the boundaries indicated by the escorts.

Located in the southeast corner of the building is a custom-made containment enclosure used to repackage and/or treat high hazard waste including high activity radiological waste and corrosive waste. The enclosure is approximately 2,200 square feet in size. Treatment activities occurring in the enclosure include neutralization, stabilization, and down-blending. The enclosure is equipped with a ventilation system to maintain negative air pressure and an exhaust system equipped with a high efficiency particulate air filtration system. The yellow enclosure in the southwest corner of the building is a temporary enclosure being used by the current contractor and will be dismantled and disposed prior to implementation of new contract. All legacy waste is expected to be dispositioned by the end of fiscal year 09. However, some small inventory of newly generated waste is expected to be present within one or more of the site's waste storage buildings at contract transition. We will now exit the facility and board the bus.

To your right is the C-759 facility that serves as a lay down yard and rail car loading and off-loading area. The yard is about 2.7 acres in size. The rail loading area is the gravel mound that is located behind the yellow container inspection stand. The rail loading area was used to support the scrap metal removal project. It should be noted that the current remediation contractor is transferring 38 DOE-owned low-sided gondolas to the Paducah Site. These lidded railcars were previously used at Fernald. These railcars will be available to the selected remediation contractor.

From this vantage point, three burial grounds can be seen. To your left is SWMU 4. The mounded area to your right is SWMU 3. The flat area to your right in between SWMU 3 and the cylinders is SWMU 2.

The baseline assumption is that SWMU 2, SWMU 3, and SWMU 4 will be excavated. It is also assumed SWMU 4 will require soil treatment such as electrical resistance heating, Chem-Ox, and/or C-Sparge.

SWMU 2 (the flat area to your right) is the C-749 Uranium Burial Ground. It encompasses an area of approximately 32,000 square feet. SWMU 2 was used from 1951 to 1977 for the disposal of uranium and uranium-contaminated wastes. Disposal records for SWMU 2 indicate that 270 tons of uranium, 59,000 gallons of oils, and 450 gallons of TCE were disposed here. The disposal records describe the waste as being drummed, with a portion of the waste being small pieces of pyrophoric uranium metal which was submerged in oil to avoid contact with air. The baseline assumption is that SWMU 2 will be excavated. A portion of the waste is anticipated to meet the waste acceptance criteria for the C-746-U landfill located north of the plant.

SWMU 3, the mounded area to your right, is the C-404 Low-Level Radioactive Waste Burial Ground. It is approximately 1.2 acres in size. The unit originally was constructed as a

rectangular aboveground surface impoundment with a surface area of 53,000 square feet and a six foot high surrounding berm. SWMU 3 was operated as a surface water impoundment from 1952 until early 1957, with all influents to the impoundment originating from the C-400 Cleaning Building. In 1957, the facility was converted to a solid waste disposal facility for solid uranium-contaminated wastes. Approximately 6,615,000 pounds of uranium-contaminated wastes were disposed in SWMU 3. All waste disposals at the facility were halted in 1986. A portion of the waste disposed here was later determined to be RCRA-hazardous for metals. The landfill was covered with a RCRA multilayer cap and was certified closed in 1987. The facility is currently under RCRA post closure permit. This permit requires semi-annual groundwater monitoring and reporting. The facility is inspected quarterly and the leachate level is checked monthly. When the C-404 collection sump reaches a predetermined level, leachate is pumped out, sampled and treated for disposal per KPDES permit requirements.

The baseline assumption is that SWMU 3 will be excavated. A portion of the waste is anticipated to meet the waste acceptance criteria for the C-746-U landfill located north of the plant.

SWMU 4, the fenced area to your left is the C-747 Contaminated Burial Yard and the C-748-B Burial Areas. SWMU 4 encompasses an area of approximately 286,700 square feet. SWMU 4 is a classified burial ground. The baseline assumes that SWMU 4 will be excavated and that in-situ soil treatment will be performed. Various classified materials buried here include weapons parts and gaseous diffusion related items. Specific descriptions of material buried in the yard are not known. Review and handling of material removed from SWMU 4 will require coordination with the infrastructure contractor security organization.

SWMU 4 is also believed to be a major contributor of TCE and tech-99 to the southwest groundwater plume. The soil treatment work scope includes the preparation and approval of all necessary documentation, the operation, dismantlement, site restoration of the selected remedial action, submittal of a Remedial Action Completion Report, and implementation of post-remedial monitoring.

The grassy area to your right is SWMU 1, the C-747-C Oil Land Farm. It is referenced in the RFP for the remediation contract as the C-720 Area Oil Land Farm. In operation between 1973 and 1979, waste oils from plant operations were spread across a 2250 square foot area. The area was then limed and fertilized, and plowed to a depth of 1 to 2 feet. The waste oils were contaminated with TCE, 1,1,1 trichloroethane, PCBs, uranium and other constituents.

Investigations at SWMU 1 identified volatile organic compounds, PCBs, dioxins, semi-volatile organic compounds, heavy metals and radionuclides as contaminants of concern. Dioxin contaminated soils have been removed from SWMU 1. Contamination is currently assumed to be restricted to soils in the area of the Upper Continental Recharge System, which is the upper 50 to 60 feet of soils at the site.

SWMU 1 will be evaluated in a Focused Feasibility Study, or FFS, for areas contributing to the southwest plume sources, excluding SWMU 4. The study will evaluate remedial alternatives for the remediation of volatile organic compounds in the source areas contributing to the Southwest Plume. The selected remediation contractor will be responsible for completing the FFS and all

post-FFS documents; operation, dismantlement, and site restoration of the selected remedial action; submittal of a Remedial Action Completion Report; and implementation of post-remedial monitoring.

The green building to your right is the C-733 Waste Storage Facility. The C-733 Waste Storage Facility is a semi-enclosed building that is RCRA permitted and is primarily used as a flammable material storage area. The floor of C-733 is concrete and covers approximately 4,000 square feet. Decanting and solidification activities occur in this facility. The maximum waste inventory for the C-733 facility is 700 55-gallon storage drums and bulk storage in four 3,000-gallon tanks, totaling 12,000 gallons. RCRA closure of the storage tanks is required in the performance work statement.

To the left of the bus is the C-746-H3 Pad. The pad is a concrete slab with a footprint of approximately 56,000 square feet. Two clamshell buildings are located on the pad. This area is used for temporary storage of low level waste and also contains a RCRA 90-day storage area.

C-720, the building in front of the bus and to your right, is an active facility leased to USEC. As such, coordination of activities through the shared site initiative will be required.

Several investigations have identified TCE, tech-99, and metal contaminants beneath the northeast and southeast parking and lay-down areas at C-720.

The C-720 Northeast Corner Area, SWMU 211-A references soils beneath the large concrete lot to the right of the bus. The Southeast Corner Area, SWMU 211-B references soils beneath the concrete lot near the C-720 receiving and loading dock, which is located on the other side of the building. As we drive by, the C-720 dock will be to your right, but the bus will not stop.

Similar to SWMU 1, SWMUs 211-A & 211-B will be evaluated in the Focused Feasibility Study for the Southwest Plume Sources.

To your left is the C-400 Building. C-400 is an active facility leased to USEC. Continuous coordination of the remedial action and subsequent decommissioning activities will be required at this facility through shared site initiatives.

The C-400 cleaning building has been identified as major source of TCE contamination in the northwest and northeast plumes. The contaminated geologic strata are known as the Upper Continental Recharge System, or UCRS, the Regional Gravel Aquifer, or RGA and the upper part of the McNairy Formation. TCE and other related VOCs were released to the environment through leaking pipelines, spills and discharges from a sump to a storm sewer at the C-400 building. The contaminants have been found in the vadose zone from the ground surface down to the water table. During site investigations, TCE maximum concentrations of approximately 11 million micrograms per kilogram in soil and 1.4 million micrograms per liter in groundwater have been found. Estimates of contaminant mass in the collective subsurface areas at the C-400 building exceed 75,000 gallons.

To address the C-400 site contamination, an interim ROD for an interim remedial action, or IRA, was signed in August 2005. The remedy selected in the ROD was a patented variant of an electrical resistance heating, or ERH technology.

ERH technologies administer out-of-phase electricity to electrodes stacked in subsurface borings. The out-of-phase electricity flows between adjacent electrode borings causing the intervening soil to heat resistively. The heating volatilizes contaminants to vapor and converts much of the water in the soil to steam. Liquid and vapors are captured through pneumatic liquid extraction wells and vacuum soil vapor extraction, brought to the surface, processed through a treatment system and collected for compliant disposal. The surface treatment system is designed to treat liquid and vapor phases recovered following heating and pumping operations in the subsurface.

The IRA includes the design, installation, operation and subsequent decommissioning of an ERH system to selectively heat discrete subsurface intervals, both vertical and horizontal, resulting in the volatilization, removal, and recovery of volatile organic compounds, primarily TCE and its breakdown products, from the C-400 treatment area. Additionally, a Remedial Design Support Investigation was completed in August 2006 that further defined the location of TCE dense non-aqueous phase liquid, or DNAPL, source contamination near C-400 building.

The current remediation contractor has completed the design of the system and construction is underway. The design provides for the installation of electrode borings, extraction wells, temperature and pressure sensors, and monitoring wells. A specialized power distribution system will supply out-of-phase electricity to the electrodes. A liquid and vapor collection-treatment and polishing system will be employed to capture contaminants removed from the subsurface.

The liquid treatment system will remove TCE and other VOCs from groundwater droplets in the vapor stream, from extracted groundwater and from condensed steam collected in a vapor conditioning system.

Construction and operation of the ERH and recovery systems will be implemented in two phases, in order to minimize the technical risk associated with using the ERH technology at more than 60 feet below surface to heat the RGA. Under Phase I, electrodes will be advanced into the RGA and the RGA heated, although DNAPL does not exist in the RGA in the Phase I areas. Information gained during the Phase I implementation will be used to optimize the Phase II implementation. Under Phase II, electrodes will be advanced into the RGA and the RGA heated to treat the DNAPL known to be present in the RGA. Under both Phases I and II, the UCRS, which overlies the RGA, will be heated to treat the DNAPL known to be present in the UCRS in these areas. Using two phases reduces technical risk and recognizes recommendations made by a DOE Independent Technical Review Team and by the regulatory agencies.

Lessons learned from the operation of Phase I will be evaluated and appropriate contingency actions will be identified for implementation prior to startup and implementation of Phase II at the southeast corner of the C-400 building. The southeast area is the most heavily contaminated area near the C-400 building. If contingency actions result in significant changes to the design, the selected remediation contractor will obtain approval for the changes from the appropriate

State and federal regulators. Potential contingency actions are identified in the Remedial Design and Remedial Action Work Plan for the IRA at the C-400 building.

The C-400 building is the site of the other active truck scales on the plant site. The scale is to the front and right of the bus.

To your right is the C-412 trailer complex. C-412 serves as an office complex for contractors associated with remedial activities at the Paducah Site.

The building to your right is the U.S. Department of Energy Paducah Site Office. DOE employees and technical and administrative support staff working at the Paducah Site are located there.

Through a work authorization between USEC and DOE, USEC provides safeguards and security support services to DOE and its assigned contractors, as a Government Furnished Service & Item, or GFSI. Protective force services include inspection of hand carried items and vehicles entering and exiting the Limited Area, access control to the Limited Area, protection of special nuclear materials, patrol of DOE security interest and classified areas, traffic control, emergency response to incidents, support of DOE contractors in the investigation of incidents of security concern, support of emergency exercise planning and exercises, and support of special requests from DOE, such as gate openings.

The railcar chute located in front of the bus is an example of multi-agency interface and coordination that must be maintained at the Paducah Site. Railcars that enter or leave the PGDP are staged on a rail siding south of the plant. Railcars are brought from or taken to the rail siding through this railroad chute. Railcar ingress and egress must be coordinated with the USEC protective force and through the Shared Site Initiative.

The protective force inspects all railcars before they are brought onto the plant site. During the entry and exit process, roads are blocked by the Protective Force to allow the ingress and egress of the railcars. Because the rail car movements can disrupt ongoing USEC and remediation contractor activities, railcar movements are coordinated as part of the Shared Site Initiative.

Also, to your right is C-752-C. This facility is being used to remove solids from drilling fluids associated with the C-400 drilling that is currently underway. Solids from the drilling operations are placed into the intermodal box and water is stored in the large tankers until they are dispositioned. This facility has been used in the past for decontamination of equipment associated with various field activities at the Paducah site.

On either side of the bus is Bayou Creek. Bayou Creek is a perennial stream that borders the west side of the Paducah Site and discharges to the Ohio River approximately 3.5 miles north of the plant.

Clean Water Act regulations are applied at the Paducah Site through the issuance of KPDES permits for effluent discharges through multiple outfalls to Bayou and Little Bayou Creeks. The permit, issued by Kentucky Division of Water in Frankfort, Kentucky, will expire on October 31,

2011. The selected remediation contractor will be added to the permit as an operator/co-permittee and will be responsible for submitting the subsequent permit renewal.

The KPDES permit allows effluent from Outfalls 001, 015 and 017 to be discharged to Bayou Creek. Outfall 019, which is located at the C-746-U Landfill, discharges to an unnamed tributary of Little Bayou Creek. Routine sampling and monitoring of the DOE permitted outfalls and monthly reporting in accordance with the KPDES permit is part of the scope of the remediation contract. USEC has responsibility for 12 outfalls under their KPDES permit.

The latest revised permit for DOE-permitted outfalls was issued in November 2006 and includes 45 water quality monitoring parameters that were not previously included in the permit. The Kentucky Division of Water and the PGDP permittees entered into an Agreed Order in December 2007 to contest inclusion of the 45 parameters. Per the KPDES Agreed Order, permittees have the right to discontinue monitoring of permit parameters that are not detected in sample data sets or resample data sets. The current remediation contractor submitted a KPDES permit modification request to the Kentucky Division of Water after confirming that this requirement had been met. Approval of the permit modification is pending.

In front of the bus is the C-746-K Sanitary Landfill that was in operation at PGDP from 1951 to 1981. A clay cap was installed in 1982. The landfill is approximately 20 feet high and 200 to 250 feet wide. Bayou Creek bounds the K Landfill to the east. An un-named tributary to Bayou Creek bounds the landfill area to the south. The remediation contractor shall conduct monthly inspections of the burial ground cap and provide corrective maintenance as required.

The primary waste stream disposed at this site was steam plant fly ash generated from burning coal. Trenches were excavated in the ash and were used for the burning of plant trash until 1967. After 1967, trash was buried at the landfill without being burned.

Four groundwater monitoring wells have been installed and post closure groundwater monitoring is conducted at the landfill on a quarterly basis. TCE and its degradation products and beta activity at concentrations above their respective regulatory criterion were identified in the wells during the late 1990s. This trend has continued with the latest data collected.

This stop provides examples of requirements identified in Section C.1.8 of the Remediation Contract for environmental monitoring and reporting. The selected remediation contractor will be responsible for sampling monitoring wells throughout the entire monitoring well network for various parameters on varying schedules, delivery of samples to an approved lab for analysis, and reporting of the results. The contractor shall also be responsible for maintaining the usability and structural integrity of the entire monitoring well network, which is currently about 285 wells and piezometers. DOE plans to install an additional 65 groundwater wells this summer to support evaluation of the off site groundwater plumes.

The selected contractor will also be responsible for routine sampling of in-stream surface water and sediment locations at locations on and off site, delivery of samples to an approved lab for analysis, quality assurance and reporting of results.



The soil berm to the left of the bus is the C-218 Outdoor Firing Range. It was utilized for weapons training from 1985 to 1992. Residual munitions fragments containing lead are found within the soils. DOE has proposed excavation of a portion the berm, which is scheduled for the summer of 2009 under the current remediation contract.

The selected remediation contractor will prepare, complete, and submit remaining documentation, including submittal of the final Removal Action Completion Report; support DOE in obtaining regulatory approval of those documents; and complete any outstanding field activities.

In the distance near the tree line to your left is Outfall 008 (note the gray hand rails and bridge structure). Outfall 008 is a DOE KPDES permitted outfall and is the responsibility of the Remediation Contractor. KPDES 004 in the foreground is a USEC outfall and is not part of the procurement.

Outfall 015 is to your left. Behind the oil skimmer retention basin with the inverted pipes, is the point of compliance for Outfall 015 before it discharges to Bayou Creek. Outfall 015 is one of three DOE permitted outfalls that discharge into Bayou Creek on the west side of the plant and is the responsibility of the remediation contractor.

To your left is the former Vortec site that was the site of a proposed soil vitrification facility for remedial activities at the PGDP. Work on the facility was initiated but never completed. The former Vortec site consists of several concrete pads. Existing utilities at the site include sanitary and fire water and an electrical system; the electrical system has been de-energized. Telecommunications, sewer, and gas lines were never installed at the site. The former Vortec site is now used as a staging area for waste containers.

To your left is Outfall 001. The gray bridge structure over the ditch identifies the KPDES-permitted outfall. Note the concrete weir below the bridge, which is the point of compliance for the outfall. Effluent sources for Outfall 001 include:

- USEC's C-616 Liquid Pollution Abatement Facility, a once-through cooling water system that discharges approximately 0.8 million gallons per day, or MGD
- DOE's Northwest Plume Pump and Treat, which discharges approximately 0.3 MGD,
- DOE's waste management activities, including routinely generated, treated leachate from the C-404 RCRA Landfill, and sump water from two other facilities with a combined discharge of approximately 40,000 gallons annually. Water from these sources is either trucked to Outfall 001 and directly discharged or discharged to the east-west ditch that feeds to Outfall 001 and
- Discharge from the C-613 Sedimentation Basin, which will be discussed at our next stop.

The C-613 Sedimentation Basin to your left provides passive collection of surface water runoff from the 61-acre northwest corner of the plant, the former scrap yard area through a series of ditches and culverts. The basin has been in operation since 2002. The basin consists of entrance sediment capture structures, flow distribution structures and a settling zone. The settling zone is constructed with a primary high-density polyethylene liner underlain with a low-permeable earthen secondary liner. A recirculation/discharge system is provided for water management.

Supplementary treatments loops are available for total suspended solids, or TSS and pH adjustment. The basin is designed to retain the estimated runoff volume of the 61-acre drainage area for a 10-year, 24-hour precipitation event yielding five inches of rainfall.

Currently, the basin is utilized for the passive collection of surface water runoff, treatment of collected water as necessary, and discharge of treated water to Outfall 001. In addition, water from elsewhere in the plant may be transported to the basin for treatment of TSS and pH for discharge to Outfall 001. TSS and pH results must be report to Kentucky Division of Water whenever the basin is discharged.

Three dissolved groundwater plumes, the Southwest, Northwest, and Northeast plumes have been identified at the Paducah Site. The building in front of us is the C-612 Pump and Treat Facility. This is one of two pump-and-treat facilities installed to implement the IRAs that were developed to mitigate and contain the high concentration portions of the Northwest and Northeast plumes. The primary contaminants in the plumes are TCE and tech-99.

In accordance with a July 22, 1993 ROD for an IRA for the Northwest Plume, two extraction well fields and a water treatment facility were installed. The goal was containment of the high-concentration zone of TCE and tech-99 in the Northwest Plume. Although the original plan was to operate the system for two years, operations have been almost continuous since August 1995.

Each well field consists of two extraction wells and the water treatment facility consists of sand filters, an air stripper, ion exchange units and activated carbon system. The system is automated and operates almost continuously. Treated water from the system is released to a ditch that flows to permit Outfall 001. To date, more than 1.2 billion gallons of groundwater from the plume have been treated and discharged.

Monitoring well data suggest the high-concentration core of TCE in the Northwest Plume at the North Extraction Well Field, may have migrated east over time, bypassing part of the capture zone of the well field. Actions to address the potential by-passing problem include evaluating preferential pumping of the high-concentration wells, and assessing containment trends at the current locations of the core of the down gradient plume.

The second pump and treat facility became operational in 1995 and addresses containment of TCE and tech-99 contamination in the Northeast Plume.

In 2008, a preliminary study on the viability of utilizing natural attenuation as a final remedy was completed. This study showed that aerobic degradation is occurring in the Regional Gravel Aquifer.

The work scope for the Dissolved Phase Plumes Project includes submittal of a Biodegradation Studies Evaluation Report and all CERCLA documents through the ROD, and, if required by the CERCLA documents, continued operation of the pump-and-treat facilities. The Dissolved Phase Plumes Project remediation scope also includes, but is not limited to, evaluating through the CERCLA process, actions necessary to prevent migration of groundwater contamination and actions necessary to remediate groundwater contamination.

In addition to the pump and treat facility, three trailers, eight Sealands and a 20,000 gallon frac tank, also called a semi-trailer bulk tank are part of the facility complex. Sealands placed at the C-612 site are for storage of equipment, chemicals and activated carbon.

We will now exit the bus to view the pump and treat facility. Please note that you will not be allowed to enter the building.

To your left and right is an example of an institutional control. Institutional control areas are identified by fencing and/or signs designed to restrict public and unauthorized worker access to areas where unacceptable radiological or chemical contaminants are present. Radiological controlled areas are easily identified by magenta and yellow chain along with similarly colored signs.

Maintenance activities include replacing faded or damaged signs, repairing damaged fencing and controlling vegetation along the institutional control areas to maintain visibility for the sign postings. The selected remediation contractor will be responsible for maintaining eight institutional control areas across DOE property and in the adjacent West Kentucky Wildlife Management Area.

To your right, note the pink and red pin flagging that marks the location of a soil pile area. In February 2007, notification was provided to EPA and Kentucky regarding the discovery of soil piles and rubble areas on the DOE reservation. Sampling of the soil piles has been completed. The decision of whether to excavate the soil piles and rubble areas has not yet been determined. If that removal action is selected, excavation is projected to include approximately 10,000 cubic yards of soil and approximately 250 cubic yards of rubble.

The work scope for the soil piles and rubble areas includes completion of field work and waste disposal, as appropriate; submittal and approval of all CERCLA documents including, but not limited to, the Action Memorandum, Removal Action Work Plan, and Removal Action Completion Report; and the archive of all accumulated sampling data in the Paducah Oak Ridge Environmental Information System, or OREIS. OREIS is a database of sample results from the site.

To your left is the C-755 trailer complex. C-755 serves as an office complex for contractors associated with remedial activities at the Paducah Site.

The heavily vegetated ditch to the left and right of the bus is Section 3 of the North-South Diversion Ditch. The North-South Diversion Ditch was created to accept process effluents from several facilities within the PGDP including the C410/420 Complex, C-400 Building, coal pile run-off, and the C-404 area. The North-South Diversion Ditch is divided into 5 sections at the Paducah Site. Sections 1 & 2 are located within the fenced area of the plant site, and sections 3, 4, & 5 are located outside the fenced area.

Remediation of this section, Section 3 and the adjacent Sections 4 & 5 are part of the Surface Water On-site Operable Unit. In addition to North-South Diversion Ditch Sections 3, 4, & 5, the

Surface Water On-site Operable Unit includes selected effluent ditches and storm sewers within the industrial area of the plant up to the permitted outfalls. The effluent ditches were selected as a result of the 2006 site investigation for the Surface Water On-site Operable Unit.

The Surface Water Offsite Operable Unit includes Sections 1 and 2 of the North-South Diversion Ditch, all effluent ditches, and site creeks. There are two primary creeks, Bayou Creek, which borders the west side of the site, and Little Bayou Creek to the east. Remedial activities for North-South Diversion Ditch Sections 1 & 2 have been completed.

The NSDD passes beneath Ogden Landing Road, which is the road in front of us, through culverts and reappears to the east or right side of the road. Section 4 of the NSDD begins at this point. Section 5 of the ditch begins northeast of the C-746-U landfill, which is one of our upcoming stops.

To your right are the C-746-S & T Landfills. This area was formerly the Area P Landfill, or SWMU 145. Area P Landfill, which is included in the Burial Grounds Operable Unit, encompasses an area of approximately 44 acres. Operation at Area P began in the early 1950s and continued to the early 1980s. The area was used by the contractor during the construction of the plant to discard all types of scrap and waste. Wastes included concrete, roofing materials, shingles with asbestos and welding rods. The area of the P Landfill was later permitted for construction and operation of the C-746-S & T landfills. Area P is considered to be a minor source of TCE to the dissolved phase groundwater plume at the Paducah Site.

The C-746-S & T Landfills are closed and are required to be maintained and inspected quarterly. Leachate collected from the C-746-S landfill is collected and transported to the C-746-U landfill leachate treatment system. Documentation of these activities is submitted in quarterly operating reports. Semi-annual groundwater samples are collected and submitted in a report. The contractor will continue to perform post-closure maintenance activities for the C-746-S&T landfills.

This is the operational C-746-U Landfill facility, which accepts waste from infrastructure and remediation contractors and USEC. DOE is named as owner on the landfill permit and the remediation contractor is named as operator of the landfill. The operation and maintenance of the landfill sedimentation basin, the leachate collection and treatment will be the responsibility of the contractor, with treated, compliant effluent discharged via the KPDES-permitted Outfall 019. As a back-up to the C-746-U leachate treatment capability, leachate can be transported to USEC treatment facilities at C-615 inside the fenced perimeter of the plant where the treated, compliant leachate is discharged to the C-616 Lagoons.

The C-746-U Landfill is designed with 23 separate cells. Cells 1, 2, and 3 are in current use. Cells 4 and 5 have the leachate collection system already installed and are ready to tie into the leachate collection system once appropriate leachate storage capacity is built into the system. Upgrades to leachate storage tank capacity and modifications to the treatment system are under construction. Additions will include 47,000 gallons of additional leachate storage capacity. The leachate treatment system is being configured to operate 24 hours a day.

Installation of liner materials for leachate collection in future cells will be required during the term of the new remediation contract. Additional leachate collection storage tanks will be required for these additions. The schedule and requirements for construction of these components is included in two minor permit modifications to the C-746-U Landfill permit recently approved by Kentucky Division of Waste Management, or KDWM, the regulating authority.

An extensive monitoring well network is in place to detect possible contaminants leaking from the landfill. The monitoring well network is sampled quarterly and results are formally reported per permit requirements.

The C-746-U RCRA Subtitle D Landfill permit was reissued July 11, 2007. This new permit combines requirements of three separate landfill permits, C-746-S, C-746-T and C-746-U Landfills.

The permit requires that a Quarterly Operating Report and Quarterly Compliance Monitoring Report be prepared for each landfill however KDWM has approved a single quarterly report. The Operations Report details the waste accepted and other site activities for the quarter. The Compliance Monitoring Report includes groundwater, surface water and methane monitoring data that are collected for each quarter.

Waste disposal, leachate treatment, equipment maintenance, environmental monitoring and landfill maintenance are responsibilities of the contractor and will be on-going per the permit for the selected remediation contractor.

The road we are currently traveling is Metropolis Lake Road and it is the eastern boundary of the "Water Policy Box". Please refer to your tour booklet for a map depicting the water policy boundary.

TCE and tech-99 were discovered in residential wells north of the Paducah Site in 1988. Upon this discovery, residents and businesses within the water policy box were immediately provided with bottled water until the residences could be tied into municipal water lines. Currently, DOE provides municipal water services to residents within the water policy boundary and collects groundwater samples from residential wells and DOE-installed wells on residential properties. The remediation contractor is responsible for the renewal of the 5-year license agreements between DOE and the residents, groundwater sampling, reporting of results, and well maintenance activities.

This concludes our tour. Thank you for your time and attention. We should arrive at the Carson Center shortly.